



Headquarters U.S. Air Force

Integrity - Service - Excellence

Sustainable Program Overview



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U.S. AIR FORCE

Integrity - Service - Excellence

Overview

- **Current AF Sustainable Policy**
- **Draft DoD and AF Sustainable Policies**
- **Sustainable Communities**
- **AFMS Look Ahead**

Current AF Sustainable Policy

- **Goals - focus on new construction**
 - Reduce environmental impact and total ownership cost
 - Improve energy efficiency and water conservation
 - Provide safe, healthy and productive built environments
- **Policy signed Jul 2007 based on LEED version 2.2**
 - FY09 - 100% of each MAJCOM's MILCON vertical construction projects (w/climate control) ***will be capable of LEED Silver certification***; 5% selected for formal LEED certification
 - FY10+: 10% of total MILCON/FY selected for formal LEED certification
- **Air Force Medical Service (AFMS) MILCON integration**
 - Minimum LEED Silver certifiable on all replacements
 - Minimum LEED Silver certifiable on all renovations, ADD/ALTs
 - Goal: All large replacements to be formally certified
 - Goal: New MILCON's achieve minimum LEED v3 Silver certification

The key to success is setting sustainable development goals early

in the planning, programming & budgeting process

Current AF Medical MILCON's

- **FY12 Andrews ACC Replacement**
 - **Goal: LEED v2.2 Silver Registered & Certified**



Andrews ACC 344,544 gsf

- **FY10-13 Lackland ACC Replacement**
 - **Goal: LEED v2.2 Gold Registered & Certified**



Lackland ACC 644,600 gsf

- **3 replacements & 1 ADD/ALT registered for LEED v2.2 Silver (Eglin, Lackland, & Andrews Dental Clinics, Elmendorf Aero/MH)**
- **1 major renovation with goal of LEED v3 Silver Commercial Interiors (Wright Patterson Medical Center)**

Exceeding current AF SDD Policy with internal goals!

Key AFMS Project Aspects

Andrews ACC

- **Site landscaping reduces overall water consumption for irrigation by 50% from a calculated baseline**
- **Energy consumption reduction by 14-16%**
- **Premium efficiency fan and pump motors w/ a min electrical efficiency of 92%**
- **HVAC design and overall building energy consumption will be validated through energy analysis and life cycle cost assessment**
- **Anticipated energy cost savings between 14-18% above ASHRAE 90.1-2007**
- **Outdoor air ventilation rates to all occupied spaces will be increased by at least 30% above ASHRAE 62.1-2007**
- **Solar water heating**

Key AFMS Project Aspects

Lackland ACC

- **Design will exceed the energy performance of a 90.1-2004 by 30%**
- **Utilize solar hot water equipment for 30% of the hot water demand**
- **Designed to use a minimum of 30% less potable water**
- **Rainwater capture, condensate recovery, or recycled water will be used for irrigation**
- **Enhanced Commissioning team**
- **“While PV will provide a very visible example of the overall sustainability of the project and help to improve the energy efficiency of the project, PV’s are relatively expensive making it difficult to get a favorable payback without incentives or rebates.”**

AF Sustainable Policy Revision

- Major revision to Jul 07 policy in draft (due to A7CA 8 Sep 10)
 - All construction meeting the USGBC LEED 2009 Minimum Program Requirements (MPRs) ***will be formally certified - Silver*** is minimum
 - Incorporates EAct 05, EO 13423, EISA 07 & EO 13514 requirements
 - Attached scorecard provides details on HPSB requirements and tracks LEED status
 - Information gathered from scorecard will help populate annual energy report - energy intensity and renewable energy generation
 - Provides sustainable benchmarks for other project types - Horizontal, Utility, and Industrial

High Performance and Sustainable Buildings (HPSB)

- **15% of existing building inventory must be HPSB by 2015**
- **AFCEE conducted initial pathfinding for HPSB surveys**
 - **5 AF installations: 30 buildings surveyed**
 - **Average score: 70%**
 - **Over 75% of HPSB aspects are installation-wide aspects**
 - **Each building has ~ 40 aspects**
 - **Requirements more difficult to achieve are:**

Energy Efficiency

Water Conservation

Metering

Commissioning

Daylighting

Thermal Comfort

- **Will not reach 2015 goal with MILCON alone**

Ventilation

Aspects of HPSB align with requirements of the Energy Audits

A Holistic Approach

Building-by-Building Approach

- Each **building** has ~40 HPSB aspects
- Many aspects are the same for every building on the installation
- Must perform energy & water calculations/ modeling on every applicable building

Requires ~840,000 data points

Installation Approach

- Each **installation** has ~30 HPSB aspects plus 10 building-centric
- Transfer requirements for energy & water reductions to the installation
- Augment successful Energy Audit program to address energy & water performance at the building level

Reduces burden to ~70,000 data points

By SF: 15% HPSB goal for AF could be met by as few as 184 facilities⁰

Sustainable Communities

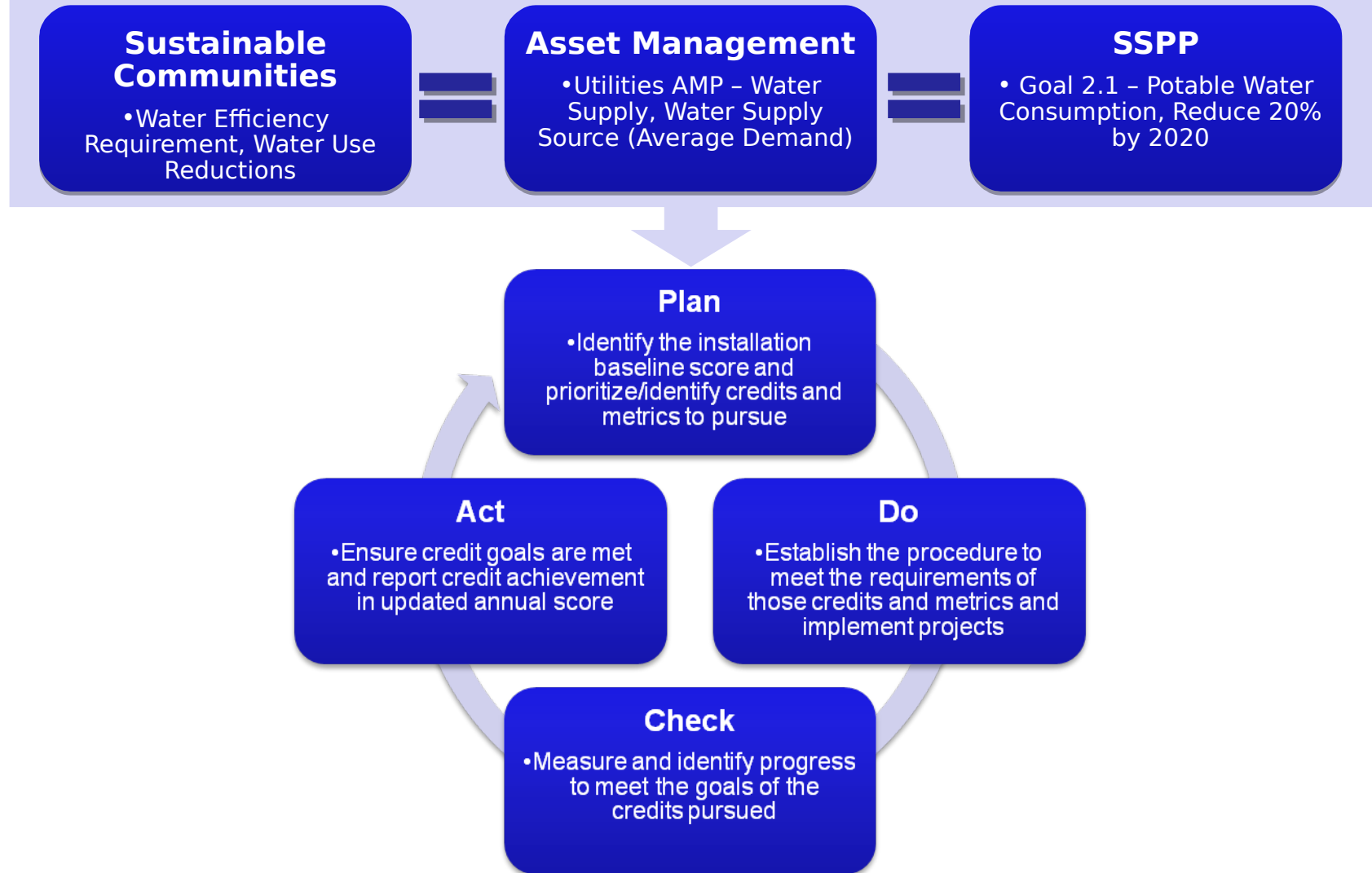
- **Sustainable Communities Initiative**
 - Effort to holistically define sustainability at the installation level
 - Very early stages of development
- **Comprehensive approach using Assessment Management and EMS principles**
- **Compliance/conformance driven**
- **LEED-like scoring approach**
- **Potential implementation of Strategic Sustainability Performance Plan (SSPP), *Triple Bottomline***



Triple Bottomline incorporated into Sustainable Communities structure

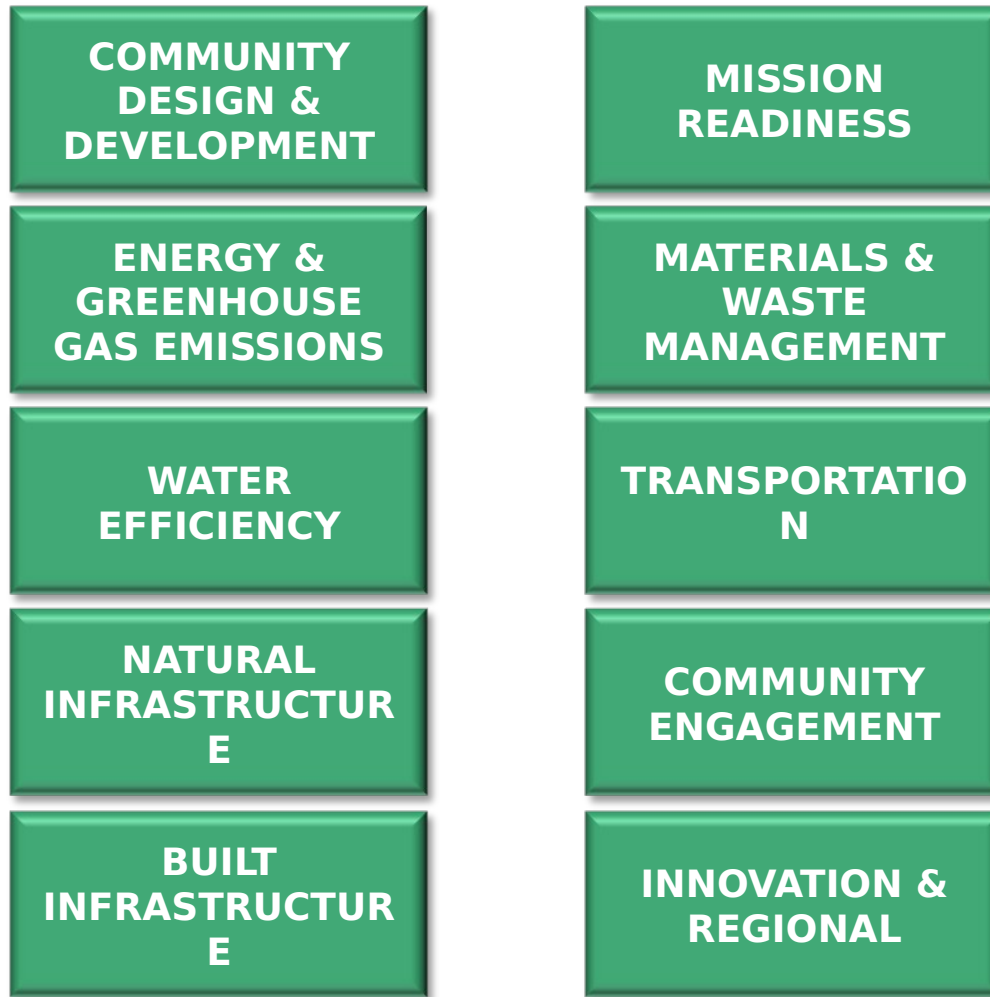
Sustainable Communities

Integration



Sustainable Communities

Categories & Scorecard Snapshot

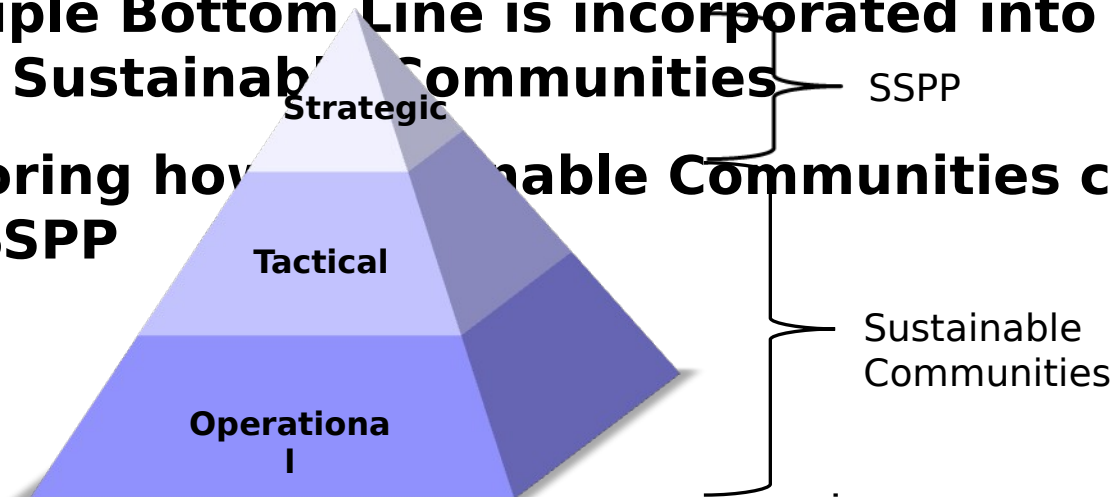


Water Efficiency (WE)		X Points
Req 1	Water Use Reduction	
Req 2	Drinking Water Quality Management	
Req 3	New Construction Storm Water Management	
Credit 1	Wastewater Management and Reuse	
Credit 2	Stormwater Management and Reuse	
Credit 3	Water Infrastructure	
Credit 4	Water Rights Documentation	
Credit 5	Minimize Potable Water for Landscaping	
Credit 6	Minimize Potable Water for Golf Course Irrigation	
Credit 7	Process & Gray Water Management and Reuse	

Categories defined by *Requirements* and *Credits*

AF Policy Change Conclusion

- Challenges are opportunities to create a paradigm shift
 - Incremental steps towards sustainability are suboptimal
 - Current approach to Federal Mandates - large data burden
- Enterprise Solution: ***Sustainable Communities***
 - Triple Bottom Line is incorporated into the structure of Sustainable Communities
- Exploring how Sustainable Communities can support the SSPP



AFMS Look Ahead

- **Track/Inform/Integrate “Big AF” policy revisions**
 - **“Sustainable Communities” participation if implemented**
 - **Support sustainable communities w/ high performing medical facilities**
 - **Encourage organizational culture changes**
 - **Achieve > min levels for all sustainability orders/policies**
- **Finalize “HFD Sustainable Design Guidance”**
 - **Enhanced commissioning**
 - **Renewable energy**
 - **Reduction Targets**
 - **Designing for EPA05, EISA07, EO 13423, EO 13514, etc...**
- **Implement energy audits into facility assessment process**
 - **Holistic project planning**

Questions